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school of medicine of Leland Stanford Junior University. Upon his resignation from the medical faculty at Western Reserve, a dinner in honor of Dr. Hanzlik was given at the University Club of Cleveland.

At Oberlin College, Mr. F. E. Carr has been promoted to an assistant professorship of mathematics, and Dr. C. H. Yeaton, of Milwaukee College of Engineering, has been appointed assistant professor of mathematics.

Dr. PAUL THOMAS YOUNG, of the University of Minnesota, has been appointed associate in psychology in the University of Illinois.

HARRY F. LEWIS, A.B., A.M. (Wesleyan), Ph.D. (Illinois), at present with the National Aniline and Chemical Company of Buffalo, has been elected associate professor of chemistry at Cornell College, Mount Vernon, Iowa.

#### DISCUSSION AND CORRESPONDENCE

##### AN ANALOGY BETWEEN THE THEORIES OF NATURAL SELECTION AND ELECTROLYSIS

1. In a recent reading of the "Origin of Species" I was struck by a marked similarity of the theory, to Clausius's views of the nature of electrolysis. In the latter one begins with ions produced by causes quite outside of the electrical forces. Their presence is a phenomenon on a scale of forces totally beyond the compass of the relatively feeble electric field. They are usually an essentially rare occurrence among molecules. The period of existence of each ion, moreover, is relatively short; but their virtues are at once retrieved, I might say inherited, by the progeny of some other molecule, so that the phenomenon is practically continuous. The familiar result is that the presence of an apparently inadequate field gives us a continuous supply of anions and cations at the electrodes.

2. Now replace ionization by variation, also an essentially independent phenomenon. Consider the positive ion a favorable variation and the negative ion an unfavorable variation. Let the electric field be replaced by natural selection, which embodies a sort of tendency or draft of the same nature as a physical field of force. At least, reciprocally with the

individual, it amounts to that, as is evidenced by the term "struggle." Physical forces, moreover, are in a similar way doubly specific. Finally, let the cathode be the goal of survival and let the anode denote extinction. Then the two mechanisms would function in the same way.

3. I have drawn inferences from the model; but these are beyond the mark here. It is merely my purpose to indicate that a mechanism which functions so efficiently in the laboratory, can not under a wider interpretation, fail to function in the economy of nature, and that you have in electrolysis an ocular and approachable demonstration of the result. The thing works. Of course the model represents only an infinitesimal element (as it were) in the continuity of Darwinian evolution. Nevertheless given ionization (however rare among millions of molecules) or an available variation; given also an electrical field (however feeble) or natural selection, you can not have stagnation; irremediably you will have to accept development, appreciable within a period commensurate with the two factors.

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#### NATIONAL TEMPERAMENT IN SCIENTIFIC INVESTIGATIONS

TO THE EDITOR OF SCIENCE: In Professor Carmichael's paper on "National temperament in scientific investigations" in SCIENCE for April 1, 1921, occurs the sentence:

They (the British) have *no university eager to nurse and develop new talent*, so that the new thinker becomes devoted to nature.

In Merz's "European Thought in the Nineteenth Century," in the first volume, part one, "on the growth and the diffusion of the scientific spirit in the first half of the nineteenth century," we find the statement on page 286:

The rare genius, gifted with the power of original thought, who found no academy ready to call him, no schools where he could be trained, *no university eager to nurse and develop his talent*, did not retire into the depths of his own